

**UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK**

In re:

PURDUE PHARMA L.P., *et al.*,

Debtors.

Chapter 11

Case No. 19-23649 (RDD)

(Jointly Administered)

EXPERT REPORT OF PROFESSOR GAUTAM GOWRISANKARAN

June 15, 2021

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I. Qualifications

1. I am currently Professor of Economics and the Peter and Nancy Salter Chair in Healthcare Management at the University of Arizona. I start as Professor of Economics at Columbia University in July 2021. I earned my B.A. from Swarthmore College in 1991 and my Ph.D. in Economics from Yale University in 1995. I have previously served as a visiting or regular faculty member at Harvard University, HEC Montréal, Universidad de los Andes (Chile), the University of Chicago, the University of Michigan, the University of Minnesota, Northwestern University, Washington University in St. Louis, and Yale University. I am a Research Associate at the National Bureau of Economic Research and a recipient of a Doctorate *Honoris Causa* from the University of Oulu (Finland).
2. I am an expert in the fields of industrial economics and healthcare economics. I have taught courses on industrial organization, competitive strategy, health economics, microeconomic theory, and econometrics at the undergraduate and graduate levels. My research has been published in leading economics and health services journals, including the *American Economic Review*, *Econometrica*, *Health Affairs*, and the *Journal of Political Economy*. I serve, or have served, on the editorial boards of five economics journals, including the *American Economic Review* and the *RAND Journal of Economics*.
3. I have received several grants from the National Science Foundation, the Agency for Healthcare Quality and Research, and private foundations to support my research. I have assisted the U.S. Congressional Budget Office in a number of ways, including current membership on their Panel of Health Advisors, previous service on their Health Insurance Simulation Advisory Panel, and discussions and presentations with them on issues of discrimination in the Economics profession and society. I am frequently invited to present my work in keynote speeches, at professional conferences, and at seminars. I have served as a consulting expert or expert witness on cases involving the analysis of antitrust claims and the rigorous application of statistical techniques to data, among other topics. My curriculum vitae, including a list of all publications I have authored and my prior testimony and a list of matters in which I have testified in deposition or at trial in the past four years, is attached as Appendix A.

II. Assignment

4. I have been retained by counsel for Purdue Pharma L.P. and its affiliates (collectively, the “Debtors” or “Purdue”)¹ to evaluate whether the opioid abatement programs funded by distributions under the Chapter 11 Plan (the “Plan”) provide value to claimants, including governmental claimants such as states, local, and tribal governments, and private claimants such as hospitals, treatment providers, third-party payors (“TPPs”), and neonatal abstinence syndrome (“NAS”) monitoring claimants.

5. For this matter, I am being compensated at my standard billing rate of \$950 per hour. I have been assisted in this matter by staff of Cornerstone Research, who worked under my direction. I also receive compensation from Cornerstone Research based on its collected staff billings for supporting my work in this matter. Neither my compensation in this matter nor my compensation from Cornerstone Research is in any way contingent or based on the content of my opinions or the outcome of this or any other matter.

6. In forming my opinions, I have reviewed and considered the materials cited in my report and exhibits, such as data and documents produced in this case, as well as other publicly available data and documents. The full list of materials I have considered is attached as Appendix B. I reserve the right to revise my opinions in light of my ongoing review of materials, including data, documents, and depositions or other testimony that may subsequently come to light.

III. Summary of Opinions

7. The abatement programs under the Plan provide value to a wide range of entities, reaching beyond the entities that directly receive funds for these programs. I understand that the Plan will fund abatement programs through the National Opioid Abatement Trust (“NOAT”), Tribe Trust, Hospital Trust, TPP Trust, and NAS Monitoring Trust. I also understand that the Plan will fund a donation to the Truth Initiative in satisfaction of ratepayer claims. In addition, I

¹ The Debtors in this case include Purdue Pharma L.P., Purdue Pharma Inc., Purdue Transdermal Technologies L.P., Purdue Pharma Manufacturing L.P., Purdue Pharmaceuticals L.P., Imbrium Therapeutics L.P., Adlon Therapeutics L.P., Greenfield BioVentures L.P., Seven Seas Hill Corp., Ophir Green Corp., Purdue Pharma of Puerto Rico, Avrio Health L.P., Purdue Pharmaceutical Products L.P., Purdue Neuroscience Company, Nayatt Cove Lifescience Inc., Button Land L.P., Rhodes Associates L.P., Paul Land Inc., Quidnick Land L.P., Rhodes Pharmaceuticals L.P., Rhodes Technologies, UDF LP, SVC Pharma LP and SVC Pharma Inc.

understand that the Plan provides for a newly formed limited liability company, NewCo, which will carry out abatement through a program called the “Public Health Initiative.”

8. I further understand that the NOAT funds will be apportioned to both state abatement programs and local government programs. However, these publicly-administered abatement programs funded by NOAT will also confer value to other entities, including other local governments, tribal governments, and private claimants such as hospitals, treatment providers, ratepayers, and TPPs. Additionally, the privately administered abatement programs funded by the Hospital, TPPs, and NAS Monitoring Trusts will confer value to entities beyond those receiving the funds, including other private claimants as well as governmental claimants such as state, local, and tribal governments.

9. Governmental and private claimants have a revealed preference for the types of abatement programs funded under the Plan, and therefore value these programs. For example, expert reports submitted by governmental Plaintiffs in opioid litigation advocate for abatement programs similar to those funded by NOAT. Plaintiffs’ experts in these matters refer to an academic literature that has touted the potential benefits of such programs. Additionally, complaints filed by governmental and private claimants in opioid litigation call for relief and abatement similar to the stated aims of abatement programs funded under the Plan. In fact, certain governmental and private claimants are already spending money on similar abatement programs, which is further evidence that they derive value from these efforts.

10. It also follows from well-accepted economic theory that the Plan will confer value to any entity for which it reduces costs, including any entity, public or private, that claims to incur higher costs due to opioid misuse for a population targeted by the funded abatement programs. To the extent any entity claims to bear the costs due to opioid misuse for a population, it will also receive value from abatement programs that reduce opioid misuse for that population. Importantly, entities claiming that they incurred costs due to the opioid misuse of a common population will receive value in the form of reduced costs from any abatement program that serves the common population, even if an entity itself does not receive funding for or administer the abatement program. As an example, preventative programs and treatment efforts reducing opioid misuse can mitigate claims of current and future costs, and therefore create value for any entity that would have otherwise paid these costs.

11. Even entities that do not bear the costs of opioid misuse associated with a population directly targeted by abatement programs will receive value under the Plan through positive spillover effects from these programs. Positive spillover effects can be driven by network effects across different populations, such as decreased opioid misuse propagating through wider reaching networks. Positive spillover effects can also arise from interactions between different entities. As one example, if abatement programs run by any entity, public or private, lower costs for a state, that could free up additional funds, allowing the state to transfer more money to local governments, which could in turn fund additional programs. Many entities receiving funding will also receive these indirect benefits without incurring any additional costs, compounding the value conferred by abatement programs under the Plan.

12. The rest of the report is organized as follows. **Section IV** provides a framework for the economic value of abatement. **Section V** describes the approved opioid abatement uses set forth in the trust distribution procedures (“TDPs”), including the NOAT, Tribe Trust, Hospital Trust, TPP Trust, NAS Monitoring Trust, the donation to the Truth Initiative Foundation, and the Public Health Initiative. **Section VI** establishes that claimants are seeking benefits similar to the approved uses of abatement funds across the trusts funded under the Plan. **Section VII** provides evidence from the academic literature and past Plaintiff reports that abatement programs will provide economic value. Finally, **Section VIII** describes how abatement spending will confer value to other entities through positive spillover effects.

IV. A Framework for the Economic Value of Abatement Programs

13. Under well-accepted economic theories, the economic value of an allocation is determined by the preferences of individuals or entities (“economic agents”).² An economic agent derives economic value or “surplus” if the expected benefit of an allocation is greater than its expected cost.³ In order to quantify these costs and benefits, economists may consider willingness to pay for the allocation: if what the economic agent is willing to pay for a good or

² Mankiw, N. Gregory, *Principles of Microeconomics*, 8th Edition, Boston, MA: Cengage Learning, 2018, at pp. 134–42.

³ Mankiw, N. Gregory, *Principles of Microeconomics*, 8th Edition, Boston, MA: Cengage Learning, 2018, at pp. 134–42.

service exceeds the costs of that good or service, the economic agent will enjoy a surplus.⁴ For example, if the agent is willing to pay \$100 for a service but the service only costs \$40, the agent obtains a surplus of \$60. Surplus, or value, will increase if the expected benefits of the good or service increase or the expected costs decrease. In other words, an economic agent receives additional value if the agent is able to obtain more benefits at the same cost or the same benefits at a lower cost.

14. In many instances, economists rely on “revealed preferences” to quantify what drives economic value for economic agents.⁵ Revealed preference theory was pioneered by Paul Samuelson, the first American to win the Nobel Prize in economics, and is a method of using the actions of economic agents to understand their preferences. Under revealed preference theory, if an economic agent is rational and fully informed, it will only undertake an action where its expected benefit exceeds its expected cost.⁶ Given the above conditions, the observation that the agent chooses an allocation therefore implies that the agent must derive value from this allocation. Using revealed preferences allows economists to quantify economic value without directly measuring expected benefits or costs. For example, if an economic agent purchases a service, an economist can infer that the agent derived economic value from that service—i.e., that the benefit exceeded the cost—without knowing the agent’s exact willingness to pay or the associated cost.

15. Scarcity of resources and accompanying budget constraints are fundamental concepts in economics.⁷ For this reason, again under the conditions of rationality and full information, each economic agent will obtain economic value from relaxing its budget constraint. Budget constraints can be relaxed in two ways. First, increasing the budget allows an economic agent to obtain more value. Second, reducing the prices of goods or services the agent is already buying effectively gives the agent a larger budget, and again enables the agent to obtain more value.

⁴ Mankiw, N. Gregory, *Principles of Microeconomics*, 8th Edition, Boston, MA: Cengage Learning, 2018, at pp. 134–39.

⁵ Mas-Colell, Andreu, Michael Dennis Whinston, and Jerry R. Green, *Microeconomic Theory*, Vol. 1, New York: Oxford University Press, 1995, pp. 3–97, at 28–30, 91–93.

⁶ Mas-Colell, Andreu, Michael Dennis Whinston, and Jerry R. Green, *Microeconomic Theory*, Vol. 1, New York: Oxford University Press, 1995, pp. 3–97, at 28–30, 91–93.

⁷ Mas-Colell, Andreu, Michael Dennis Whinston, and Jerry R. Green, *Microeconomic Theory*, Vol. 1, New York: Oxford University Press, 1995, pp. 3–97, at 80–91.

16. Within this context, when claimants ask for certain abatement programs, this provides evidence that they expect that these programs will generate economic value. Under revealed preferences, an economist can also infer that claimants derive value from abatement programs or spending which they have already undertaken, and thus similar abatement programs funded using distributions under the Plan will confer value on such claimants by allowing them to enjoy the same benefits at a reduced cost or additional benefits for no additional cost. Furthermore, abatement programs that reduce a claimant's costs will relax their budget constraint, freeing up funds that claimants can use to obtain additional economic value.

V. Review of Abatement Programs and Approved Opioid Abatement Uses of Trusts Under the Plan

A. National Opioid Abatement Trust Distribution Procedures

17. The National Opioid Abatement Trust Distribution Procedures (“NOAT Distribution Procedures”) are intended to establish the mechanisms for the distribution and allocation of funds distributed by NOAT under the Plan to “(1) the states, territories, and the District of Columbia (each a ‘State’ as defined in the Plan), and (2) each county, city, town, parish, village, and municipality... that is otherwise not a ‘State’ as defined in the Plan (collectively, the ‘Local Governments’).”⁸

18. Recognizing that “...funding abatement efforts—which would benefit most creditors and the public by reducing future effects of the crisis through treatment and other programs—is a much more efficient use of limited funds than dividing thin slices among all creditors with no obligation to use it to abate the opioid crisis...”⁹ NOAT only allows uses of its funds on specific opioid or substance use disorder-related abatement projects or programs that are approved by NOAT and listed in Schedule B of the NOAT Distribution Procedures.¹⁰

19. As explained in the NOAT Distribution Procedures, (1) no less than 95% of NOAT funds shall be used for the approved abatement programs and strategies; (2) among these programs,

⁸ Notice of Filing the Sixth Plan Supplement Pursuant to the Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 2, 2021, Exhibit G: National Opioid Abatement Trust Distribution Procedures (“NOAT Distribution Procedures”), at p. 1.

⁹ NOAT Distribution Procedures, at p. 2.

¹⁰ NOAT Distribution Procedures, at p. 3.

priority should be given to the core abatement strategies listed in Schedule A of the NOAT Distribution Procedures; and (3) no more than 5% of NOAT funds may be used to fund expenses incurred in administering the distribution of the approved opioid abatement uses.¹¹

20. Approved opioid or substance use disorder-related projects and programs listed in Schedule B include: (1) the treatment of opioid use disorder (“OUD”) and any co-occurring substance use disorder or mental health (“SUD/MH”) conditions; (2) supporting people in recovery from OUD and any co-occurring SUD/MH conditions; (3) providing connections to care for people who have—or are at risk of developing—OUD and any co-occurring SUD/MH conditions; (4) addressing the needs of persons with OUD and any co-occurring SUD/MH conditions who are involved in, are at risk of becoming involved in, or are transitioning out of the criminal justice system; (5) addressing the needs of pregnant or parenting persons with OUD and any co-occurring SUD/MH conditions, and the needs of their families, including babies with NAS; (6) supporting efforts to prevent over-prescribing and ensuring appropriate prescribing and dispensing of opioids; (7) supporting efforts to discourage or prevent misuse of opioids; (8) supporting efforts to prevent or reduce overdose deaths or other opioid-related harms; and (9) other strategies to educate and support first responders, leadership, school staff, planning, coordination, training, and research.¹²

21. The NOAT also identifies a subset of the abatement programs listed in Schedule B as core strategies, which should be given higher priority than the other programs. These core strategies, which are listed in Schedule A, include: (1) Naloxone or other FDA-approved drugs to reverse opioid overdose; (2) medication-assisted treatment (“MAT”) distribution and other opioid-related treatment; (3) expanding treatment and recovery services for pregnant and postpartum persons; (4) expanding treatment and recovery services for NAS babies; (5) expansion of “warm hand-off” programs¹³ and recovery services; (6) increasing treatment and recovery support for incarcerated population; (7) prevention programs, including funding for evidence-based prevention programs in schools, 8) expanding syringe service programs; and (9)

¹¹ NOAT Distribution Procedures, at p. 3.

¹² NOAT Distribution Procedures, Schedule B.

¹³ Warm hand-off programs are programs to ensure that individuals who have suffered an opioid overdose are immediately and seamlessly placed into OUD treatment.

evidence-based data collection and research analyzing the effectiveness of the abatement strategies.¹⁴

B. Tribe Trust Distribution Procedures

22. The Tribe Trust Distribution Procedures (“Tribe TDP”) are intended to establish the mechanisms for the distribution and allocation of Tribe Trust funds to tribes for the purpose of satisfying all applicable claims held by a tribe.¹⁵ The Tribe TDP states that funds will be used to abate the opioid crisis. Specifically, no less than 95% of the abatement funds distributed under the Tribe Trust Agreement shall be used for abatement of the opioid crisis by funding opioid or substance use disorder-related projects or programs.¹⁶

23. Approved uses for Tribe Trust funds closely parallel those of NOAT funds and include: (1) the treatment of opioid use disorder (OUD) and any co-occurring SUD/MH conditions; (2) supporting people in treatment and recovery from OUD and any co-occurring SUD/MH conditions; (3) connecting people who have – or at risk of developing – OUD and any co-occurring conditions to the help they need; (4) addressing the needs of criminal-justice involved persons; (5) addressing the needs of pregnant or parenting persons with OUD and their families, including babies with NAS; (6) preventing over-prescribing and ensuring appropriate prescribing and dispensing of opioids; (7) discouraging or preventing misuse of opioids (e.g., funding media campaigns); (8) preventing overdose deaths and other opioid-related harms (e.g., through increased availability and distribution of naloxone); (9) supporting and educating first responders regarding appropriate practices and precautions when dealing with opioids; (10) supporting efforts to provide leadership, planning, coordination, facilitations, training and technical assistance to abate the opioid epidemic (e.g., through statewide, regional, local or community regional planning to identify root causes of addiction and overdose); (11) supporting training to abate the opioid epidemic (e.g., funding staff training for networking programs); and (12) supporting opioid abatement research.¹⁷

¹⁴ NOAT Distribution Procedures, Schedule A.

¹⁵ Notice of Filing the Sixth Plan Supplement Pursuant to the Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 2, 2021, Exhibit H: Tribe Trust Distribution Procedures (“Tribe TDP”), at pp. 1–2.

¹⁶ Tribe TDP, at p. 2.

¹⁷ Tribe TDP, Schedule B.

C. NAS Monitoring Trust Distribution Procedures

24. The NAS Monitoring Trust will assume liability for all applicable NAS monitoring claims held on account of a NAS Child that relate to medical monitoring support, educational support, vocational support, familial support or similar related relief and are not for alleged personal injuries suffered by a NAS child.¹⁸ The NAS Monitoring Trust will make abatement distributions to authorized recipients in the form of “NAS Monitoring Grants.”¹⁹

25. The NAS Monitoring Grants will be granted for programs relating to NAS sponsored by a grant recipient or grantee, which advance all or any of the following goals: (1) preparing children with a history of NAS to be ready to enter or to succeed in school; (2) informing through evidence the standard of care for all NAS children ages zero to six, with priority given to NAS children ranging in age from three to six; and/or (3) enhancing the mother-child dyad (any program relating to any of the NAS Monitoring authorized abatement purposes, an “NAS Abatement Program”).²⁰ The NAS Monitoring Trust will make abatement distributions to grant recipients or grantees exclusively for authorized abatement purposes. Decisions concerning abatement distributions made by the NAS Monitoring Trust will consider the need to ensure that underserved urban and rural areas, as well as minority communities, receive equitable access to the funds.²¹

D. Hospital Trust Distribution Procedures

26. The Hospital Trust Distribution Procedures (“Hospital TDP”) describe the allocation of funds to the providers of healthcare treatment services or any social services (“hospitals”). Apart from the administration of the fund, the TDP includes criteria for hospitals to be eligible to receive funds from the Hospital Trust, the factors which will be used to determine a given hospital’s funds allocation, as well as the approved uses for any allocated funds.²²

¹⁸ Notice of Filing the Sixth Plan Supplement Pursuant to the Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 2, 2021, Exhibit B: NAS Monitoring Trust Distribution Procedures (“NAS Monitoring TDP”), Schedule B.

¹⁹ NAS Monitoring TDP, Schedule B.

²⁰ NAS Monitoring TDP, Schedule B.

²¹ NAS Monitoring TDP, Schedule B.

²² Notice of Filing the Sixth Plan Supplement Pursuant to the Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 2, 2021, Exhibit A: Hospital Trust Distribution Procedures (“Hospital TDP”), at p. 1.

27. Only hospitals which satisfy specific conditions will be eligible to receive funds from the Hospital Trust, which I understand can be summarized as follows. The TDP requires a hospital to certify that it has the appropriate standard of care for patients with OUD; to provide claims to demonstrate that it incurred additional expenses in the past and expects to do so in the future, due to treatment of OUD patients; and to state that it plans to use Hospital Trust funds in an appropriate way.²³

28. Approved uses for funds allocated by the Hospital Trust include the following: (1) transportation to treatment facilities for patients with OUD; (2) professional education in addiction medicine, including programs addressing stigma; (3) counteracting diversion of prescribed medication in ED or practice; (4) community efforts to provide OUD treatment to those in jails, prisons, or other detention facilities; (5) community education events on opioids and OUD; (6) naloxone kits and instruction to patients upon discharge; (7) needle exchange in hospital or adjacent clinic; (8) prospectively providing otherwise unreimbursed or under-reimbursed future medical services for patients with OUD or other opioid-related diagnoses; (9) building or leasing space to add halfway house beds; (10) research on development of innovative OUD treatment practices; (11) transferring money to other Authorized Recipients, if they use it on abatement purposes; (12) Medication-Assisted Treatment programs;²⁴ and (13) other abatement activities with the permission of the Court, at the request of the Trustee.²⁵

E. TPP Trust Distribution Procedures

29. The TPP Trust Distribution Procedures (“TPP TDP”) describe the allocation of funds to the TPPs such as health insurance companies. The procedures include administration of the TPP Trust and approved uses of TPP funds. Only TPPs that satisfy certain conditions will be eligible to receive funds from the TPP Trust.²⁶

²³ Hospital TDP, at p. 3.

²⁴ However, only a total of \$50 million may be spent on such programs. *See* Hospital TDP, at p. 9.

²⁵ Hospital TDP, at pp. 8–9.

²⁶ Notice of Filing the Sixth Plan Supplement Pursuant to the Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 2, 2021, Exhibit E: TPP Trust Distribution Procedures (“TPP TDP”), at pp. 1–6.

30. Approved uses for funds allocated by the TPP Trust include the following:²⁷ (1) approved MAT expenses;²⁸ (2) approved uses/programs that provide treatment of OUD and/or SUH/MH;²⁹ and (3) and the payment of attorneys' fees and costs.

F. Donation to the Truth Initiative Foundation

31. Separately, the Plan provides for a monetary donation to the Truth Initiative Foundation to be used for national opioid prevention and education efforts, including youth and young adult education and prevention. This donation is made with respect to claims filed by certain ratepayers that healthcare costs caused by the opioid crisis were passed on to ratepayers by insurance providers in the form of increased health insurance premiums, deductibles, and copayments.³⁰

G. Public Health Initiative by NewCo

32. The Plan also provides for the creation of a new limited liability company, NewCo, which will be indirectly owned by NOAT and the Tribe Trust.³¹ The Plan contemplates that the court order confirming the Plan will require NewCo to pursue and implement a program to be known as the "Public Health Initiative."³² The Public Health Initiative will include the distribution, on a nonprofit basis, of opioid overdose reversal and addiction treatment medications.³³

²⁷ TPP TDP, at pp. 9–10.

²⁸ For a detailed list of expenses, *See* Appendix C to TPP TDP.

²⁹ For a detailed list of programs, *See* Appendix D to TPP TDP.

³⁰ Disclosure Statement for Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 2, 2021 ("Disclosure Statement for Fifth Amended Joint Chapter 11 Plan"), at p. 4 fn.4, p. 94.

³¹ Disclosure Statement for Fifth Amended Joint Chapter 11 Plan, at p. 22; Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 3, 2021 ("Fifth Amended Joint Chapter 11 Plan"), at p. 68.

³² Disclosure Statement for Fifth Amended Joint Chapter 11 Plan, at pp. 47, 126; Fifth Amended Joint Chapter 11 Plan, at pp. 21, 29.

³³ Disclosure Statement for Fifth Amended Joint Chapter 11 Plan, at pp. 48, 52–53; Fifth Amended Joint Chapter 11 Plan, at p. 29.

VI. Governmental and Private Claimants Are Seeking Common Benefits That Are Similar to Abatement Programs Under the Plan, Including Programs Funded by Each of the Trusts

33. The different claimant groups have sought and are seeking the same types of abatement programs to mitigate their claims of opioid misuse-related costs. These preferences are expressed across many sources over time, including the types of harm alleged and relief sought in various complaints filed by both governmental and private claimant groups, as well as in Plaintiff expert reports in various cases filed by states and local governments related to the opioid epidemic. These common preferences demonstrate that the approved abatement programs outlined in each of the trusts' documents will provide value to all claimants. They also support a revealed preferences justification that these abatement programs will generate economic value.

34. In their complaints in pending opioid litigation, claimant groups have made common claims and sought common types of relief that are similar to abatement programs funded by trusts under the Plan. For instance, state and local governments, as well as publicly funded healthcare systems, anticipate continued spending on treatment, prevention, and law enforcement initiatives to abate the alleged harms of the opioid epidemic.³⁴ A governmental mental health organization in Ohio and a tribal healthcare provider in Alaska both sought assistance for programs including: (1) education for prescribers and patients regarding opioids; (2) increased access to naloxone; (3) community prevention programming; and (4) treatment for OUD.³⁵ Hospitals and other healthcare providers have also sought abatement of costs they claim that they will incur in the future due to the ongoing epidemic.³⁶ A TPP similarly requested abatement

³⁴ First Amended Complaint and Jury Demand, *Commonwealth of Massachusetts v. Purdue Pharma L.P., et al.*, C.A. No. 1884-cv-01808 (BLS2) (Suffolk Cty. Super. Ct. Mass. Jan. 31, 2019), ¶¶ 906–907; First Amended Complaint, *State of Washington v. Purdue Pharma L.P., et al.*, No. 17-2-25505-0 SEA (King Cty. Super. Ct. Wa. May 4, 2018), ¶ 1.11; Complaint, *City of Anacortes, and Sedro-Woolley School District v. Purdue Pharma, L.P., et al.*, No. 2:18-cv-1853 (W.D. Wa. Dec. 21, 2018), ¶¶ 17, 371, 378; Complaint, *The Jackson County Health Care Authority v. Purdue Pharma L.P., et al.*, Case No. 1:19-op-45134-DAP (N.D. Ohio Mar. 14, 2019), ¶¶ 32, 100, 108; Complaint, *Broward Behavioral Health Coalition v. Purdue Pharma L.P., et al.*, Case No. 0:19-cv-61172-UU (S.D. Fla. May 8, 2019), ¶¶ 42, 674; Second Amended Corrected Complaint, *The County of Cuyahoga, Ohio, et al. v. Purdue Pharma L.P., et al.*, MDL No. 2804, Case No. 17-md-2804 (N.D. Ohio May 18, 2018), ¶¶ 33, 779.

³⁵ Complaint, *Mental Health & Recovery Services Board of Allen, Auglaize, and Hardin Counties v. Purdue Pharma L.P., et al.*, Case No. 1:18-op-46344-DAP (N.D. Ohio Dec. 18, 2018), ¶ 142; Complaint, *Southeast Alaska Regional Health Consortium v. Purdue Pharma L.P. et al.*, Case No. 3:18-cv-00217-TMB (D. Alaska Sept. 20, 2018), ¶ 270.

³⁶ Complaint, *J. Jones Hospital v. McKesson Corp., et al.*, Case No. 2:18-cv-29 (S.D. Ala. Jan. 24, 2018), ¶ 206; Complaint, *Patients' Choice Med. Ctr. of Erin, Tennessee v. Purdue Pharma L.P., et al.*, Case No. 3:19-cv-00370 (M.D. Tenn. May 2, 2019), ¶ 218.

programs to offset the costs of treating OUD.³⁷ NAS claimants also sought assistance to bolster NAS monitoring programs, including periodic medical examinations, diagnosis, and treatment for NAS and associated diseases.³⁸

35. Additionally, expert reports filed on behalf of state and local governments in various cases have proposed similar programs to abate the opioid epidemic. For example, Plaintiff experts Dr. Jeffrey Liebman and Dr. Caleb Alexander served expert reports outlining “evidence-based and evidence-informed measures and approaches” to reduce opioid-related morbidity and mortality for the State of Washington in *State of Washington v. Purdue Pharma L.P., et al.* and for Cuyahoga and Summit counties in Ohio in *In Re: National Prescription Opiate Litigation* (the “Opioid MDL”).³⁹ The abatement programs proposed for Washington and the two counties in Ohio in the Opioid MDL are almost identical. For instance, Dr. Alexander identified the exact same categories of abatement plans for Washington and Cuyahoga and Summit counties: (1) reducing opioid oversupply and improving safe opioid use; (2) identifying and treating individuals with OUD; and (3) caring for special populations.⁴⁰ Within each category, Dr. Alexander identified the same specific approaches and programs for both Washington and the two counties in Ohio.⁴¹ Dr. Liebman also identified the same programs for Washington and the two Ohio counties covering treatment, harm reduction, primary prevention, and system coordination programs to abate opioid-related costs.⁴²

³⁷ Complaint, *International Union of Operating Engineers, Local 150, et al. v. Purdue Pharma L.P., et al.*, Case No. 2019CH01548 (Cook Cty. Ill. Feb. 6, 2019), ¶¶ 12, 764, 771.

³⁸ Class Action Complaint, *Melissa Ambrosio, individually and as next friend of Baby G.A., on behalf of themselves and all others similarly situated v. Purdue Pharma L.P.*, Case No. 2:18-cv-02201 (C.D. Cal. Mar. 16, 2018), ¶ 170; Complaint, *Lori Taylor, as next friend and guardian of Baby M.T. v. Purdue Pharma L.P., et al.*, Case No. 1:19-op-45529-DAP (N.D. Ohio Jun. 18, 2019), ¶¶ 5, 29.

³⁹ Supplemental Expert Report of Dr. Jeffrey B. Liebman, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1899-12, April 3, 2019 (“MDL Liebman Supplemental Report”); Expert Report of Dr. Jeffrey B. Liebman, *State of Washington v. Purdue Pharma L.P. et al.*, State of Washington King County Superior Court, Case No. 17-2-25505-0 SEA, July 8, 2019 (“Washington Liebman Report”); Supplemental Expert Witness Report of G. Caleb Alexander, MD, MS, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1999-2, April 3, 2019 (“MDL Alexander Supplemental Report”); Expert Witness Report of G. Caleb Alexander, MD, MS, *State of Washington v. Purdue Pharma L.P. et al.*, State of Washington King County Superior Court, Case No. 17-2-25505-0 SEA, July 8, 2019 (“Washington Alexander Report”).

⁴⁰ MDL Alexander Supplemental Report, at pp. 13–14; Washington Alexander Report, at pp. 15–16.

⁴¹ MDL Alexander Supplemental Report, at pp. 13–14; Washington Alexander Report, at pp. 15–16.

⁴² MDL Liebman Supplemental Report, at p. 2; Washington Liebman Report, at p. 2.

36. The abatement programs proposed by the two Ohio counties in the Opioid MDL are also similar to abatement programs proposed by the State of Oklahoma in opioid litigation. The proposed abatement programs in Oklahoma aimed to treat OUD, prevent new cases of addiction, mitigate or reverse the consequences of prescription opioid shipments, and address additional problems related to opioid misuse. These programs included OUD prevention, treatment and recovery services, overdose prevention and response, medical education, NAS treatment, data surveillance, and other coordination efforts, which cover the same categories of abatement programs as proposed by the experts in the Opioid MDL.⁴³

37. The abatement programs proposed in the Plaintiff expert reports of the Opioid MDL are similar to the approved uses for multiple trusts under the Plan. In his expert report filed on behalf of Cuyahoga and Summit counties in the Opioid MDL, Dr. Liebman identified four major areas of needed services: treatment programs, harm reduction programs, prevention programs, and system coordination efforts.⁴⁴

38. Specifically, treatment elements of the abatement plan proposed by Dr. Liebman include “the provision of treatment services, such as detoxification, inpatient and outpatient therapy, recovery housing, and medication-assisted treatment (MAT), resources for better connecting individuals to treatment services, and targeted interventions with high priority populations – those in jail, families in the child welfare system, and opioid-using pregnant women.”⁴⁵ These proposed programs identify many of the same service needs that are addressed by approved uses for various trusts under the Plan.

39. The approved uses of funds outlined in the TDPs for the NOAT, Tribe Trust, Hospital Trust, TPP Trust, and NAS Monitoring Trust address similar needs for treatment services as the abatement plan proposed in the Opioid MDL. For example, both the abatement plan proposed in the Opioid MDL and the approved uses for NOAT funds involve expanded availability of treatment—including all forms of MAT and non-MAT services, as well as expanded training for treatment providers, schools, and community support groups, and programs to connect

⁴³ Supplemental Expert Disclosure of Christopher J. Ruhm, Ph.D., *State of Oklahoma, ex rel., et al. vs. Purdue Pharma L.P., et al.*, District Court of Cleveland County, State of Oklahoma, Case No. CJ-2017-816, February 5, 2019, Supplemented Exhibit S, at p. 8.

⁴⁴ MDL Liebman Supplemental Report, at p. 2; Washington Liebman Report, at p. 2.

⁴⁵ MDL Liebman Supplemental Report, at p. 15.

individuals seeking treatment to services. In addition, the plan includes intervention programs targeted at special populations with distinct characteristics: incarcerated individuals, pregnant persons, and NAS babies and families.⁴⁶ The Tribe Trust closely parallels NOAT in its approved uses to expand the availability of treatment.⁴⁷ Similarly, approved uses for the TPP Trust include MAT expenses as well as other treatment for OUD or SUD/MH.⁴⁸ The Hospital Trust also targets a wide variety of treatment services including MAT programs, increased access to treatment for OUD through transportation or other community efforts, and education for providers.⁴⁹ The NAS Monitoring Trust is dedicated specifically to interventions regarding NAS babies.⁵⁰

40. Harm reduction elements, which are designed to reduce morbidity and mortality among those with OUD, are also consistent across the proposed abatement plan in the Opioid MDL and approved uses for funds under the Plan. The Opioid MDL proposal included “distributing naloxone, resources for needle exchange, and interventions to treat and reduce the spread of HIV and hepatitis C among intravenous drug users, as well as the provision of housing support for vulnerable populations that have high rates of opioid use.”⁵¹ The NOAT Distribution Procedures, in turn, allow the use of NOAT funds to “[i]ncrease availability and distribution of naloxone,” “[p]rovide comprehensive syringe services programs,” “[e]xpand access to testing and treatment for infectious diseases such as HIV and Hepatitis C resulting from intravenous opioid use,” and “[p]rovide comprehensive wrap-around services to individuals in recovery including housing, transportation, job placement/training, and childcare.”⁵² Similarly, approved uses for the Tribe and Hospital Trusts include professional and community education programs and provision of naloxone kits.⁵³ The Hospital Trust further explicitly includes the implementation of needle exchange programs as an approved use.⁵⁴ The TPP Trust also approves support programs to provide transportation, job training, and legal services to assist in the living conditions of OUD

⁴⁶ MDL Liebman Supplemental Report, at p. 15.

⁴⁷ Tribe TDP, Schedule B.

⁴⁸ TPP TDP, Appendix D.

⁴⁹ Hospital TDP, at p. 8.

⁵⁰ NAS Monitoring TDP.

⁵¹ MDL Liebman Supplemental Report, at p. 3.

⁵² NOAT Distribution Procedures, Schedule A, Schedule B.

⁵³ Hospital TDP, at p. 8; Tribe TDP, Schedule B.

⁵⁴ Hospital TDP, at p. 8.

patients in treatment.⁵⁵ The Public Health Initiative will also fund the development and distribution of opioid overdose reversal and addiction treatment medications.⁵⁶

41. Prevention elements of the proposed abatement plan in the Opioid MDL include media campaigns to prevent opioid use, school-based prevention programs, medical provider education and outreach, and drug disposal programs.⁵⁷ Support of medical research and education programs are also approved uses of the NAS Monitoring funds, and each of these prevention elements is identified as a core strategy in the NOAT Distribution Procedures and Tribe TDP.⁵⁸ The TPP Trust also sponsors similar programs such as utilization management programs designed to prevent OUD, programs providing locations for safe and free disposal of opioids, and programs to develop predictive modeling for earlier identification of OUD.⁵⁹ The Hospital Trust is dedicated to provide continuing professional education in addiction medicine to medical providers.⁶⁰ The donation to the Truth Initiative Foundation under the Plan will likewise support opioid misuse prevention programs, including youth and young adult education efforts.⁶¹

42. System coordination elements of the proposed abatement plan in the Opioid MDL include tracking abatement progress and deploying data-informed systems re-engineering and management to allocate resources to highest value uses.⁶² The approved uses of NOAT funds to support “evidence-based data collection and research analyzing the effectiveness of the abatement strategies within the state” and to support “community coalitions in implementing evidence-informed prevention” address those aspects of the Opioid MDL abatement proposal as described in Dr. Liebman’s expert report.⁶³ The Tribe Trust includes similar language approving the use of funds to support system-wide coordination efforts toward abatement.⁶⁴

43. The significant overlap in sought or proposed abatement programs across different claimant groups demonstrates that the claimants themselves believe they will receive value from the same types of abatement programs. These same services and needs are also overlapping with

⁵⁵ TPP TDP, Appendix D.

⁵⁶ Disclosure Statement for Fifth Amended Joint Chapter 11 Plan, at pp. 47, 52–53; Fifth Amended Joint Chapter 11 Plan, at p. 29.

⁵⁷ MDL Liebman Supplemental Report, at p. 3.

⁵⁸ NAS Monitoring TDP, Schedule B; NOAT Distribution Procedures, Schedule A; Tribe TDP, Schedule B.

⁵⁹ TPP TDP, Appendix D.

⁶⁰ Hospital TDP, at p. 8.

⁶¹ Disclosure Statement for Fifth Amended Joint Chapter 11 Plan, at p. 4 fn.4, p. 94.

⁶² MDL Liebman Supplemental Report, at pp. 25–26.

⁶³ NOAT Distribution Procedures, Schedule A, Schedule B.

⁶⁴ Tribe TDP, Schedule B.

approved uses for each of the trusts under the Plan. Therefore, applying the framework of revealed preferences, it follows that the claimant groups will obtain economic value under the Plan regardless of precisely which trust or entity is responsible for dedicating funding to a program.

VII. Claimants' Statements Provide Further Evidence of the Economic Value of the Abatement Programs to Claimants

44. As I previously discussed in **Section IV**, reducing costs generates economic value. If abatement programs funded under the Plan are able to reduce the current and future costs of claimants, as Opioid MDL Plaintiff experts expect they will, these claimants obtain economic value because they are able to achieve the same benefit at a lower cost. In addition, the lower cost relaxes the claimants' budget constraint, allowing it to obtain further value from spending on other programs or services.

45. Opioid MDL Plaintiff experts rely on economic studies to allocate the costs allegedly associated with opioid misuse to private and public entities. For example, the expert report of Opioid MDL Plaintiff expert Dr. Thomas McGuire states that opioid misuse has increased "health care costs, criminal justice costs, lost productivity, and the cost of premature death" borne by governments, hospitals, TPPs, and individuals.⁶⁵ In his report, Dr. Thomas McGuire relied upon a 2016 CDC study that estimated that prescription opioid abuse, dependence, and overdose contributed \$78.5 billion to total costs in 2013.⁶⁶ The study concluded that the public sector bore approximately one quarter of the overall nationwide cost of the opioid epidemic in terms of healthcare, substance abuse treatment, and criminal justice costs, while private entities such as private health insurers bore approximately 18% of the costs. Plaintiff expert Dr. Liebman has also opined that "the need to respond to opioid-related social harms [has] diverted public sector resources from other valuable purposes."⁶⁷

46. The abatement programs funded under the Plan are expected to reduce the categories of costs that claimants attribute to opioid misuse. As explained above, the programs that would be

⁶⁵ Report of Professor Thomas McGuire, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1999-17, March 25, 2019, at p. 54.

⁶⁶ Florence, Curtis, Feijun Luo, and Likang Xu (2016), "The Economic Burden of Prescription Opioid Overdose, Abuse, and Dependence in the United States, 2013." *Medical Care*, 54(10), pp. 901–906, at 901, Figure 1.

⁶⁷ MDL Liebman Supplemental Report, at p. 2.

funded by the abatement trusts are similar to the abatement programs that the Opioid MDL Plaintiffs proposed and that their experts opined would build on approaches that have been implemented and shown to be effective in reducing opioid-related morbidity and mortality. For example, according to Dr. Alexander, MAT has been proven effective in retaining people in treatment, reducing illicit drug use, decreasing criminal activity, and preventing overdose death.⁶⁸ Dr. Katherine Keyes, another Plaintiff expert in the Opioid MDL, referenced a study that found states with “Naloxone Access” or “Good Samaritan” laws that helped improve access to naloxone during an opioid overdose saw a reduction in opioid overdose deaths of approximately 8–11%.⁶⁹ Approved abatement uses for funds in the NOAT Trust, Tribe Trust, TPP Trust, and Hospital Trust and through the Public Health Initiative are all intended to improve such access.⁷⁰ Dr. Keyes also discussed evidence showing the harm reduction impact of routine fentanyl testing at medical facilities among opioid users and access to testing strips for personal use.⁷¹ These are the same types of abatement programs that fall in the scope of the approved uses for NOAT funds, Tribe Trust, and TPP Trust.⁷²

VIII. Each Trust’s Opioid Abatement Programs Will Confer Economic Value to Claimants Beyond Its Targeted Claimant Group

47. By definition, many abatement programs funded by different trusts will target the same population, and in doing so an abatement program funded by one trust can confer value to a claimant group associated with a different trust. For example, if an abatement program reduces opioid misuse for the population receiving services from Banner Health, a healthcare system based in Phoenix, it has reduced opioid misuse for the State of Arizona. More broadly, abatement programs that reduce opioid misuse for a population will confer economic value to all entities that serve the same population and claim to incur costs because of opioid misuse, regardless of which trust funds the program.

⁶⁸ MDL Alexander Supplemental Report, at pp. 58–59.

⁶⁹ Expert Witness Report of Katherine Keyes, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1868-4, March 24, 2019 (“Keyes Report”), at p. 38.

⁷⁰ See NOAT Distribution Procedures, Schedule A; Tribe TDP, Schedule B; TPP TDP, at p. 16; Hospital TDP, at p. 9; Disclosure Statement for Fifth Amended Joint Chapter 11 Plan, at pp. 47, 52–53.

⁷¹ Keyes Report, at p. 40.

⁷² NOAT Distribution Procedure, Schedule B; TPP TDP, at p. 17; Tribe TDP, at p. 15.

48. As an example, consider treatment programs that may reduce opioid misuse for an individual, such as programs involving MAT, rehabilitation, or mental health services. These programs are approved uses for NOAT, Tribe Trust, Hospital Trust, and TPP Trust funds.⁷³ If these programs are effective in reducing opioid misuse, they will reduce any opioid-misuse related costs that could be incurred by any downstream entity, including state and local governments as well as private entities such as the individual's healthcare providers and TPPs.⁷⁴ Thus, regardless of which trust funds the program, a wide range of claimants will obtain economic value through the related reduced costs.

49. Since public and private spending on health are closely intertwined, there are many other ways that abatement programs from one trust can also confer economic value to a claimant group associated with a different trust. For example, improvements in the health of local patient populations reduce demands on the local and private healthcare systems, reduce the amount of uncompensated care provided by local governments, hospitals and other healthcare providers, and thereby directly lessen the strain on those local government budgets and healthcare providers.⁷⁵ By lessening the costs of uncompensated care, all of these entities enjoy relaxed budget constraints and therefore obtain economic value.

50. Moreover, abatement programs may function as public goods, which confer economic value to an even wider set of claimants. "Public goods" is a term used by economists to characterize goods or services that have the following distinct features: non-excludability and non-rivalry. Non-excludability means that once the service is provided, specific individuals cannot be prevented from enjoying its benefits at no cost. Non-rivalry means that consumption of the service by one individual does not reduce the benefits available to other potential consumers.⁷⁶ Some opioid abatement programs may have features of public goods. To the extent

⁷³ NOAT Distribution Procedures, Schedule A; Tribe TDP, Schedule B; Hospital TDP, at p. 9; TPP TDP, at pp. 9–10.

⁷⁴ Birnbaum, Howard G., Alan G. White, and Matt Schiller (2011), "Societal Costs of Prescription Opioid Abuse, Dependence, and Misuse in the United States," *Pain Medicine*, 12, pp. 657–667, <https://academic.oup.com/painmedicine/article/12/4/657/1869828>, at 657; Florence, Curtis, Feijun Luo, and Ketra Rice (2021), "The Economic Burden of Opioid Use Disorder and Fatal Opioid Overdose in the United States, 2017," *Drug and Alcohol Dependence*, 218, pp. 1–7, <https://doi.org/10.1016/j.drugalcdep.2020.108350> ("Florence et al. (2021)"), at 1.

⁷⁵ "Medicaid and Counties, Understanding the Program and Why It Matters to Counties," *NACo*, February 2018, https://www.naco.org/sites/default/files/documents/Medicaid_02.19.18.pdf, accessed on May 27, 2021, at p. 11.

⁷⁶ A textbook example of a public good is a lighthouse. A lighthouse is non-excludable because once it is built, no boat that travels in the surrounding waters can be prevented from enjoying its benefits. A lighthouse is non-rival because the potential benefit to a given boat is not diminished when other boats benefit from the service.

that abatement programs do have features of public goods, claimants will obtain value from these programs regardless of their source of funding.

51. As a simple example of an opioid abatement program with features of a public good, consider a state-funded education program that reduces the future incidence of OUD. In the future, all public and private entities claiming costs associated with OUD should also benefit from a reduction in the incidence of OUD in the served population. Thus, the economic value generated from this reduction in the incidence of OUD cannot be limited to the state government that funded the education program.

52. Further, the effect of abatement spending should extend to other claimant groups beyond those associated with a specific trust through positive spillover effects. Such positive spillover effects may have various mechanisms in the healthcare setting. It may be a straightforward positive spillover from a treated individual to a non-treated individual such as sharing knowledge gained from an abatement program with friends from neighboring localities. It could also be a positive spillover arising from changing behavior of various actors in the healthcare sector, such as a hospital system introducing an opioid misuse prevention program in all of its locations even though such a program is only funded by funds from the Plan in some locations.

53. In other settings, such effects have been well-documented. For example, Einav et al. (2020) document that a payment reform for hip and knee replacement in the traditional Medicare program affected not only individuals covered by the program, but also patients covered by private insurers through the Medicare Advantage program.⁷⁷ The mechanism which the authors propose is that providers, in response to a payment reform, changed their way of treating all patients, and not just the targeted patients. In a different study, Baicker et al. (2013) find spillover effects of the Medicare Advantage sector on traditional Medicare.⁷⁸ In areas where funding for Medicare Advantage was greater, Medicare Advantage enrollment was higher, and this led to lower costs for all patients, not only those covered by Medicare Advantage. The

⁷⁷ Einav, Liran, Amy Finkelstein, and Yunan Ji (2020), “Randomized Trial Shows Healthcare Payment Reform Has Equal-Sized Spillover Effects on Patients Not Targeted by Reform,” *Proceedings of the National Academy of Sciences*, 117(32), pp. 18939–18947, <https://www.pnas.org/cgi/doi/10.1073/pnas.2004759117>.

⁷⁸ Baicker, Katherine, Michael E. Chernew, and Jacob A. Robbins (2013), “The Spillover Effects of Medicare Managed Care: Medicare Advantage and Hospital Utilization,” *Journal of Health Economics*, 32(6), pp. 1–41, <https://www.sciencedirect.com/science/article/abs/pii/S0167629613001124?via%3Dihub>.

spillover mechanisms are hypothesized, again, to work through the healthcare provider channel, as changes in their patient mix can lead providers to adjust their practice style for all patients.⁷⁹

54. Due to positive spillover effects across patients and providers, any claimant that benefits from reductions in opioid misuse is likely to receive value from abatement programs under the Plan, regardless of which entity directly receives and administers the funds. And, in fact, governmental claimants, such as state and local governments and tribes, and private claimants, such as hospitals, TPPs, and NAS monitoring claimants, have all claimed to incur costs as a result of opioid misuse. Therefore, as described for each claimant group below, abatement programs funded under the Plan that reduce opioid misuse are likely to confer value to all claimants.

55. State and local governments are likely to receive value from opioid misuse mitigation. Abatement programs funded by NOAT are intended to mitigate opioid misuse and associated public nuisance.⁸⁰ Therefore, any programs that effectively reduce opioid misuse are likely to provide value to state and local governments, regardless of which trust funded the programs. Any programs that further reduce state or local government funded healthcare spending will also provide value by freeing up additional funds from their existing budgets.

56. Similarly, tribes are likely to receive value from opioid misuse mitigation. Tribes are closely linked to neighboring localities such that the deployment of opioid abatement funds on healthcare and education programs by any entity in a neighboring locality will provide value to the tribe. For example, tribal citizens have access to the same private healthcare providers as the general population through a supplementary purchase program integrated into the Indian Health Service, the main source of healthcare services to the tribal population.⁸¹ In addition, the vast

⁷⁹ Baicker, Katherine, Michael E. Chernew, and Jacob A. Robbins (2013), “The Spillover Effects of Medicare Managed Care: Medicare Advantage and Hospital Utilization,” *Journal of Health Economics*, 32(6), pp. 1–41, <https://www.sciencedirect.com/science/article/abs/pii/S0167629613001124?via%3Dihub>.

⁸⁰ NOAT Distribution Procedures, Schedule A.

⁸¹ “Purchased/Referred Care (PRC),” *Indian Health Service*, June 2016, <https://www.ihs.gov/newsroom/factsheets/purchasedreferredcare/>, accessed on June 7, 2021. (“The PRC Program is integral to providing comprehensive health care services to American Indians and Alaska Natives (AI/AN). The IHS health system delivers care through direct care services provided in IHS, tribal, and urban (I/T/U) health facilities (e.g., hospitals, clinics) and through PRC services provided by non-IHS providers.”).

majority of tribal students attend public schools.⁸² Hence, any programs that provide value to the general population such as treatment and prevention programs at hospitals and schools will also provide value to the tribal population.

57. Hospitals are also likely to receive value from opioid misuse mitigation. Hospital abatement funds are intended to prevent and address the complications of OUD.⁸³ A reduction in the incidence of OUD due to mitigation of opioid misuse will thus necessarily provide value to hospitals. I also understand that certain healthcare providers claim to accrue unreimbursed costs as a result of indigent populations with OUD to whom healthcare facilities provide treatment without receiving full or any payment. If state opioid abatement programs reduce the incidence of OUD or if they fund the rehabilitation of people with OUD, such healthcare providers will likely face fewer unreimbursed costs in the future.

58. TPPs are likely to receive value from opioid misuse mitigation. This is because TPP abatement funds are intended to reimburse claims associated with OUD, and the incidence of OUD will decrease if opioid misuse is mitigated.⁸⁴ Thus, a reduction in the incidence of OUD due to mitigation of opioid misuse will directly provide value to TPPs by reducing the quantity of OUD claims they will have to pay.

Lastly, NAS Monitoring claimants are likely to receive value from opioid misuse mitigation. This is because the NAS Monitoring Trust is intended to provide medical monitoring, education, and family support to help reduce the incidence and costs of NAS.⁸⁵ As discussed above, expanding treatment and recovery services for pregnant and postpartum persons is one of the core strategies of the NOAT and Tribe Trust. Other programs and services funded by hospital and TPP Trusts aimed at reducing opioid misuse will also decrease exposure to opioid during pregnancy and thus the incidence of NAS babies. Therefore, NAS Monitoring claimants are likely to receive value from other abatement programs funded under the Plan that seek to reduce opioid misuse.

⁸² “Education,” National Congress of American Indians, https://www.ncai.org/policy-issues/education-health-human-services/education#FTN_1, accessed on June 7, 2021. (“Ninety percent of Native students attend public schools, while eight percent attend schools administered by the Bureau of Indian Education (BIE).”).

⁸³ Hospital TDP, at p. 3.

⁸⁴ TPP TDP, at p. 10.

⁸⁵ NAS Monitoring TDP, Schedule B.

A handwritten signature in black ink, appearing to read 'Gautam Gowrisankaran', is positioned above a horizontal line.

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- Gowrisankaran, Gautam and Thomas J. Holmes (2004). “Mergers and the Evolution of Industry Concentration: Results from the Dominant Firm Model.” *RAND Journal of Economics* 35: 561–82. (Also NBER Working Paper 9151.)
- Gowrisankaran, Gautam and Joanna Stavins (2004). “Network Externalities and Technology Adoption: Lessons from Electronic Payments.” *RAND Journal of Economics* 35: 260–276. (Also NBER Working Paper 8943.)
- Chernew, Michael, Gautam Gowrisankaran, Catherine McLaughlin and Teresa Gibson (2004). “Quality and Employers’ Choice of Health Plan.” *Journal of Health Economics* 23: 471–92. (Also NBER Working Paper 9847.)
- Gowrisankaran, Gautam and Robert J. Town (2003). “Competition, Payers and Hospital Quality.” *Health Services Research* 38: 1403 – 22. (Also NBER Working Paper 9206.)
- Geweke, John, Gautam Gowrisankaran and Robert J. Town (2003). “Bayesian Inference For Hospital Quality in a Selection Model.” *Econometrica* 71: 1215 – 1238. (Also NBER Working Paper 8497.)
- Chernew, Michael, Gautam Gowrisankaran and A. Mark Fendrick (2002). “Payer Type and the Returns to Bypass Surgery: Evidence from Hospital Entry Behavior,” *Journal*

- of Health Economics* 21: 451 – 474. (Also NBER Working Paper 8632.)
- Gowrisankaran, Gautam (1999). “A Dynamic Model of Endogenous Horizontal Mergers,” *RAND Journal of Economics* 30: 56 – 83.
- Gowrisankaran, Gautam (1999). “Efficient Representation of State Spaces for Some Dynamic Models.” *Journal of Economic Dynamics and Control* 23: 1077 – 98.
- Gowrisankaran, Gautam and Robert J. Town (1999). “Estimating the Quality of Care in Hospitals Using Instrumental Variables,” *Journal of Health Economics* 18: 747 – 67.
- Gowrisankaran, Gautam and Robert J. Town (1997). “Dynamic Equilibrium in the Hospital Industry.” *Journal of Economics and Management Strategy* 6: 45 – 74.

Submitted papers:

- Gowrisankaran, Gautam and Marc Rysman (2020). “A Framework for Empirical Models of Dynamic Demand.”
- Gowrisankaran, Gautam, Keith Joiner and Pierre-Thomas Léger (2020). “Physician Practice Style and Healthcare Costs: Evidence from Emergency Departments.” Revision resubmitted to *Management Science*. (Also NBER Working Paper 21,155.)
- Fleitas, Sebastian, Gautam Gowrisankaran and Anthony Lo Sasso (2020). “Reclassification Risk in the Small Group Health Insurance Market.” (Also NBER Working Paper 24,663.)
- Gowrisankaran, Gautam, Charles He, Eric Lutz and Charles Burgess (2020). “Productivity, Safety, and Regulation in Underground Coal Mining: Evidence from Disasters and Fatalities.” (Also NBER Working Paper 21,129.)
- Gowrisankaran, Gautam, Keith Joiner and Jianjing Lin (2019). “How Do Hospitals Respond to Payment Incentives?” (Also NBER Working Paper 26,455.)

Working papers:

- Gowrisankaran, Gautam, Marc Rysman and Grace Yu (2016). “Computing Price-Cost Margins in a Durable Goods Environment.”
- Gowrisankaran, Gautam, Marc Rysman and Minsoo Park (2012). “Measuring Network Effects in a Dynamic Environment.”

Other (non-refereed) publications:

- Gowrisankaran, Gautam (2019). “Comments on Jones et al. (2019) and Advice to for the Graduate School Application Process.” Forthcoming, *Journal of Economic Education*.
- Gowrisankaran, Gautam (2011). “Evaluating the Impact of a Hospital Merger Using the Difference-in-Difference of Prices.” (Comment on article by Steven Tenn.) *International Journal of the Economics of Business* 18: 83 – 89.
- Gowrisankaran, Gautam (2008). “Competition Among Hospitals and Hospital Quality” (2008), Ch. 12 of *Incentives and Choice in Health and Health Care*, F. Sloan and H. Kasper, eds. Cambridge: MIT Press.
- Gowrisankaran, Gautam and John Krainer (2005). “Bank ATMs and ATM Surcharges,” Federal Reserve Bank of San Francisco Economic Letter 2005-36.
- Gowrisankaran, Gautam (2002). “Why Do Americans Still Write Checks?” Federal Reserve Bank of San Francisco Economic Letter 2002-27.
- Gowrisankaran, Gautam (2002). “Productivity in Heart Attack Treatments,” Federal Reserve Bank of San Francisco Economic Letter 2002-20.
- Gowrisankaran, Gautam (2002). “Competition and Regulation in the Airline Industry,” Federal Reserve Bank of San Francisco Economic Letter 2002-01.

AWARDS AND HONORS:

Winner, Best Paper in Regulatory Economics Prize at 2021 International Industrial Organization Conference, for “Soaking Up With Sun: Investment, Renewable Energy, and Market Equilibrium,” (joint with Andrew Butters and Jackson Dorsey)

Bernie Saffran Lecture, Swarthmore College, March, 2019

Keynote speech, North Carolina Health Economics Colloquium, Wake Forest University, October, 2018

Keynote speech, International Conference on Innovation and Industrial Economics, Nanjing University, Nanjing, China, 2018, 2016

American Economic Association, Excellence in refereeing award, 2007, 2008, 2018

Invited speaker, 2018 Latin American Workshop in Econometrics, August, 2018, Lima, Peru

Doctorate *Honoris Causa*, University of Oulu, May, 2017

Grossman Lecture, Colby College, March, 2017

Winner, Best Paper Award from the 2021 Workshop in Health IT and Economics (WHITE), for “Does Health IT Lead to Better Information or Worse Incentives?” (under former title), joint with Keith Joiner and Jianjing Lin

Invited lecture, Shanghai University of Finance and Economics Industrial Organization Summer School, Shanghai, China, June, 2016

Winner, 2016 [Antitrust Writing Award](#) for best academic paper on mergers, for “Mergers When Prices Are Negotiated: Evidence from the Hospital Industry,” joint with Aviv Nevo and Robert Town

Invited lecture, Martti Ahtisaari Institute, Oulu, Finland, August, 2015

Invited speaker, Colombian Health Economics Association, Cali, Colombia, 2015

Invited speaker, Latin American Meetings of the Econometric Society, Sao Paulo, Brazil, 2014

Invited speaker, European Association for Research in Industrial Economics, Evora, Portugal, 2013

Keynote speech, Zhejiang University Conference on Industrial Economics, Hangzhou, China, 2013

Canadian Economic Association State of the Art Lecture, Montreal, Canada, 2013

Keynote speech, Network of Industrial Economists Conference, London, United Kingdom, 2012

Keynote speech, Copenhagen Business School Conference, *Common Ground: Recent Work in Empirical Labour and Industrial Organization*, Copenhagen, Denmark, 2012

Keynote speech, Center for European Economic Research (ZEW) Symposium, *A Framework for Estimating Demand in Consumer Durable Goods Markets*, Mannheim, Germany, 2011

Grande conférence (keynote speech), Les Journées de CIRPÉE 2009 (Annual Meetings), Québec, Canada

2009 Kalt Prize Recipient, for Best Doctoral Student Mentorship at the Eller College of Management

Eller College Fellow, University of Arizona, 2007–11

Distinguished Visitor, Boston University Department of Economics, June 2008

GRANTS:

National Science Foundation Grant SES-1824348, “Collaborative Research: Pollution Mitigation and Productivity in Developing Countries,” 2018-21, \$202,831 (Role: PI).

Eller College Small Research Grant and Center for Management Innovations in Healthcare Grant, “Preferred Pharmacy Networks,” 2017, \$12,000 (Role: PI).

Agency for Healthcare Quality and Research 1R01HS024850-01, “Narrow Network Health Plans: Effects on Access, Cost, Quality, and Selection,” 2016-19, \$383,180 for University of Arizona subcontract only (Role: co-PI; PI of University of Arizona subcontract).

National Science Foundation Grant SES-1425063, “Bargaining in Bilateral Oligopolies with Application to the Health Sector,” 2014-17, \$256,999 (Role: PI).

Alpha Foundation for the Improvement of Mine Safety and Health Grant, “Implementation of Risk Management Programs: Identification of Best Practices to Reduce Injuries and Maximize Economic Benefits,” 2013-15, \$668,518 (Role: co-PI).

University of Arizona Renewable Energy Network Policy Research Initiative Grant, “Intermittency and Multiple Sources in Renewable Energy,” 2012-13, \$11,998 (Role: PI)

University of Arizona, Center for Management Innovations in Health Care Summer Grants, 2011, 2012, 2013, 2015 (Role: PI)

Agency for Healthcare Research and Quality Grant R01-HS018424-01A1, “Hospital Choice, Hospital Quality and Patient Welfare for Rural Residents,” 2010–13, \$577,514 (Role: PI)

National Science Foundation Grant SES-0922540, “Collaborative Research: Estimation and Computation of Dynamic Oligopoly and Network Effects Model,” 2009–13, \$207,164 (Role: PI)

NET Institute Fellowship, 2009, 2004, 2003

Missouri Foundation for Health contract. “Healthy Outcomes: The Impact of Employee Cost-Sharing on Healthcare Costs and Outcomes,” 2007–08, \$416,714 (Role: PI)

Commonwealth Foundation Grant 20070068. “Healthy Outcomes: The Impact of Employee Cost-Sharing on Healthcare Costs and Outcomes,” 2007, \$121,320 (Role: PI)

National Science Foundation Grant SES-0551360, “Collaborative Research: Dynamic Demand for New Durable Goods: An Empirical Model and Applications to Pricing and Welfare,” 2006 – 09, \$104,897 (Role: PI)

National Science Foundation Grant SES-0318170, “Estimating Models of Firm Entry,” 2003– 06, \$207,645 (Role: PI)

University of Minnesota, Faculty Summer Research Fellowship, 1999, 1996 University of Minnesota, Single Quarter Leave, Winter 1998

Alfred P. Sloan Foundation Doctoral Dissertation Fellowship, 1994 – 95

Social Sciences and Humanities Research Council of Canada Doctoral Fellowship, 1993 – 95

Master’s and Doctoral Fellowship (latter declined) from the Government of Quebec, Fonds pour la formation des chercheurs et l’aide à la recherche (FCAR), 1991 – 95

Yale University Fellowship, 1991 – 95

EXTERNAL SERVICE:

Editorial positions:

Associate editor, *RAND Journal of Economics*, 2015–

Associate editor, *International Economic Review*, 2014–

Associate editor, *Journal of Business and Economic Statistics*, 2009–

Member of board of editors, *American Economic Review*, 2011–2016

Associate editor, *Economic Inquiry*, 2008–13

Ad-hoc referee:

American Economic Review
American Journal of Preventive Medicine
B.E. Journals in Economic Analysis & Policy
Canadian Journal of Economics
Energy Journal
Econometrica
Economic Journal
Economic Inquiry
Economica
European Economic Review/Journal of the European Economic Association
Health Affairs
Health Economics
Health Economics, Policy and Law
Health Services Research
International Economic Review
International Journal of Disaster Risk Reduction
International Journal of Industrial Organization
Journal of Applied Econometrics
Journal of Banking and Finance
Journal of Business and Economics Statistics
Journal of Comparative Economics
Journal of Econometrics Journal of Economic Theory
Journal of Economics and Business
Journal of Economics and Management Strategy
Journal of Health Economics
Journal of Human Resources
Journal of Industrial Economics
Journal of Law and Economics
Journal of Law, Economics and Organization
Journal of Political Economy
Management Science
Marketing Science
Quarterly Journal of Economics
RAND Journal of Economics
Review of Economic Dynamics
Review of Economic Studies
Review of Economics and Statistics
Review of Network Economics
Southern Economic Journal

Ad-hoc reviewer:

Chilean National Science Foundation
Hong Kong Research Grants Council
National Science Foundation
W.W. Norton & Company
Trinity College Dublin, Institute for International Integration Studies

University of Venice Doctoral Committee

John Wiley & Sons

University of Gothenburg, opponent for dissertation exam

Public and government outreach and service:

Member of U.S. Congressional Budget Office Health Advisory Panel, 2020 – present,
Health Insurance Simulation Advisory Panel, 2018 – 20

Presentation, [*Recent Research on the Economics of Discrimination: What Do We Know and Where to From Here?*](#) Congressional Budget Office, January, 2021

Co-organizer, University of Arizona Department of Economics [Reading Group on the Economics of Discrimination](#), Fall 2020

Panel presentation, *Perspectives and Lessons from the Canadian Healthcare System*, University of California, Berkeley Gilbert Center International Health Systems Conference, October, 2020

Member of National Science Foundation Economics Program Review Panel, 2017 – 19

Panel presentation, *Preparing Undergraduates for Application to Graduate School*, Allied Social Sciences Association Winter Meetings, Atlanta, GA, January, 2019

Panel presentation, *Narrow Networks and State Level Policies*, State Policy Mini-Conference, Berkeley, March, 2018

Panel presentation, *New Models of Healthcare Delivery: How Is Healthcare Changing? How is the Government Responding?* Cornerstone Research and Stanford Institute for Economic and Policy Research, Stanford, January, 2017

Panel presentation, *The Ghosts of Small Group Health Insurance: Past, Present, and Future*, Caribbean Health Economics Symposium, Tortola, BVI, December, 2016

Panel presentation, *The Economics of Accountable Care Organizations*, Accountable Care Organizations and Antitrust Conference, University of California, Berkeley, November, 2011

Participant in Federal Reserve Board of Governors Academic Consultant Meeting, 2011

Lecture series, *Estimation of Durable Goods Models for Differentiated Products*, Bureau of Economic Analysis, 2010

Faculty Advisor for Graduate Student Dissertation Workshop, Western Economic Association International, Portland, OR, 2010

Expert reports, declarations, and testimony:

FTC v. Hackensack Meridian Health, Inc. and Englewood Healthcare Foundation, Expert Report (April 9, 2021), Deposition (May 5, 2021), and trial testimony (May 17, 2021).

Djeneba Sidibe v. Sutter Health, United States District Court for the Northern District of California, Supplement to Expert Report (March 12, 2021) and Deposition (March, 29, 2021) in support of defendants.

Sentry Data Systems, Inc. v. CVS Pharmacy, Inc., United State District Court for the Southern District of Florida, Expert Report (September 9, 2019) in support of defendants.

Djeneba Sidibe v. Sutter Health, United States District Court for the Northern District of California, Expert Report (June 21, 2019) and Deposition (July 17, 2019) in support of defendants.

UFCW & Employers Benefit Trust v. Sutter Health and People of the State of California v. Sutter Health, Superior Court of the State of California for the City and County of

San Francisco, Declaration (October 29, 2018), Deposition (December 17 and 18, 2018), and Addendum to Declaration (March 27, 2019) in support of defendants.
 Djeneba Sidibe v. Sutter Health, United States District Court for the Northern District of California, Declaration (October 5, 2017; updated April 3, 2018) and Deposition (February 6, 2018) in support of defendants.

In the Matter of Tribune Media Company and Sinclair Broadcast Group, Inc.

Consolidated Applications for Consent to Transfer Control, FCC MB Docket No. 17-179, Applicants' Consolidated Opposition to Petitions to Deny, Declaration (August 22, 2017) in support of Sinclair Broadcast Group, Inc.

Grasso v. Electrolux Home Products, Inc., United States District Court for the Middle District of Florida, Initial Expert Report (October 3, 2016), Supplemental Expert Report (November 4, 2016), and Deposition (December 9, 2016) in support of defendant.

USA v. Cabell Huntington Hospital Inc. and St. Mary's Medical Center Inc., Expert Report (March 2, 2016) in support of defendants.

Efficient Pricing of ADSL Wholesale Services, joint with Jeffrey MacKie Mason, Australian Competition and Consumer Commission, Export Report (August 23, 2012) in support of Telstra Corporation Limited.

In Re: TFT-LCD (Flat Panel) MDL1827 (State of Missouri et al. v. AU Optronics et al. and State of Florida et al. v. AU Optronics et al.), United States District Court for the Northern District of California, Expert Report (January 17, 2012) and Deposition (March 7, 2012) in support of plaintiffs.

Comes v. Microsoft CL82311, Iowa District Court, Export Report (June 2, 2006), Supplemental Expert Report (June 19, 2006), and Deposition (July 26, 2006) in support of plaintiffs.

Selected other antitrust consulting experience:

U.S. Department of Justice, Antitrust Division, 2013, 2010, 2008, consultant on cases involving airline and hospital mergers

Federal Trade Commission, 2007–08, consultant on hospital merger case

State of Minnesota, Office of the Attorney General, St. Paul, MN, 2001, consultant on airline merger case

Competition Economics, Inc., Washington, DC, 1998, consultant on airline competition issue

Microeconomic Consulting & Research Associates (MiCRA), Inc., Washington, DC, 1995–97, consultant on a number of merger cases

Conference organization:

Co-organizer, Annual Center for European Economic Research (ZEW) Energy Conference, Mannheim, Germany, 2012–21

Co-organizer, Annual HEC Montreal/CIRPÉE Conference on Industrial Organization, 2012–20

Program chair for competition in health care markets area, 2019 American Society of Health Economists Conference (ASHEcon)

Co-organizer, Workshop on Healthcare and Industrial Organization. University of Chile, 2017

Co-organizer, 2012 Econometric Society Summer Meetings

Co-organizer, 2005, 2006 and 2007 International Industrial Organization Conference

Co-organizer, 2004 and 2005 Washington University CRES Industrial Organization Conference

PH.D. STUDENT ADVISING:

Advisor for Kelli Marquardt, Ph.D., University of Arizona, 2021, first position, Research Economist, Federal Reserve Bank of Chicago

Advisor for Arundhati Tillu, Ph.D., University of Arizona, 2019, first position, E2e Energy Policy Fellow, University of Chicago

Advisor for Sebastian Fleitas, Ph.D., University of Arizona, 2017, first position, Assistant Professor of Economics, University of Leuven

Advisor for Anatolii Kokoza, Ph.D., University of Arizona, 2017, first position, Data Scientist, USAA

Co-advisor for Nedko Yordanov, Ph.D., University of Arizona, 2016, first position, Associate, EconOne Consulting

Advisor for Jianjing Lin, Ph.D., University of Arizona, 2015, first position, Postdoctoral Fellow, Tulane University

Advisor for Chuan (Charles) He, Ph.D., University of Arizona, 2015, first position, Senior Economist, Amazon.com

Advisor for Leila Asgari, Ph.D., University of Arizona, 2014, first position, Associate Vice President, J.P. Morgan Chase

Advisor for T.N. (Subra) Subramaniam, Ph.D., University of Arizona, 2014, first position, Senior Associate in Modeling, Discover Card

Advisor for Chrystie Burr, Ph.D., University of Arizona 2013, first position, Assistant Professor, Department of Economics, University of Colorado – Boulder

Advisor for Kathleen Nosal, Ph.D., University of Arizona 2012, first position: Assistant Professor, Department of Economics, University of Mannheim

Advisor for Mario Samano, Ph.D., University of Arizona 2012, first position: Assistant Professor, Institute of Applied Economics, HEC Montreal Business School

Advisor for Joseph Cullen, Ph.D. University of Arizona 2009, first position: Harvard University Center for the Environment Postdoctoral Fellowship, Assistant Professor, Olin Business School, Washington University in St. Louis

Advisor for Ivan Maryanchyk, Ph.D. University of Arizona 2009, first position: Senior Analyst, Bates White Economic Consulting

Advisor for Oleksandr Shcherbakov, Ph.D. University of Arizona 2008, first position: Cowles Postdoctoral Fellowship, Yale University

Co-advisor for Fumiko Hayashi, Ph.D. University of Minnesota 2001, first position: Federal Reserve Bank of Kansas City

RESEARCH PRESENTATIONS (with most recent title):

Invited seminar presentations since October, 2001:

A Computable Dynamic Oligopoly Model of Capacity Investment
University of Chile, September, 2013
Bank of Canada, July, 2013

A Hospital System's Wellness Program Linked To Health Plan Enrollment Cut Hospitalizations But Not Overall Costs

University of California, Riverside, February, 2012
 Duke University, October, 2010
 Northwestern University, May, 2009

Bayesian Inference For Hospital Quality in a Selection Model

Agency for Healthcare Quality and Research, October, 2003
 University of Montreal, November, 2002
 Queen's University, October, 2002
 UC Davis, May, 2002
 Duke University, January, 2002
 Yale University, December, 2001
 Federal Reserve Bank of Chicago, November, 2001

Causality and the Volume-Outcome Relationship in Surgery

University of Chicago, Health Economics Seminar, April, 2005
 Syracuse University, April, 2005

Computing Price-Cost Margins in a Durable Goods Environment

Cornell University, November, 2015

Does Health IT Adoption to Better Information or Worse Incentives?

UCLA Anderson School, May 2017
 University of Chicago, May, 2016
 Emory University, March, 2016

Dynamics of Consumer Demand for New Durable Goods

École Polytechnique/CREST (Paris), October, 2011
 INSEAD Business School, April, 2011
 Katholieke Universiteit Leuven, April, 2011
 University of Texas, September, 2010
 U.S. Bureau of Labor Statistics, December, 2009
 U.S. Bureau of Economic Analysis, September, 2009
 University of Helsinki, August, 2009
 Harvard University, December, 2008
 University of Southern California, October, 2008
 Bristol University, May, 2008
 University of Toronto Rotman School, March, 2008
 Federal Trade Commission, December, 2007
 University College London, May, 2007
 London School of Economics, April, 2007
 University of Minnesota Marketing Department, February, 2007
 Drexel University, December, 2006
 Arizona State University, November, 2006
 University of California Los Angeles, May, 2006
 Stanford University, May, 2006
 Johns Hopkins University, May, 2006

Purdue University, March, 2006
 University of Arizona, February, 2006
 Duke University, September, 2005
 Federal Reserve Bank of San Francisco, June, 2005
 University of Missouri, April, 2005
 Northwestern University Kellogg School of Management, April, 2005

Escalation of Scrutiny: The Gains from Dynamic Enforcement of Environmental Regulations

Columbia University, November, 2019
 Indiana University, September, 2019
 New York University Stern School of Business (joint with Columbia University),
 April 2019
 University of Technology, Sydney, March 2019
 University of Queensland, March, 2019
 University of California, Los Angeles, February, 2019
 University of Michigan, November, 2018
 Universidad Carlos III de Madrid, April, 2018 École Polytechnique/CREST (Paris),
 April, 2018
 University of Rochester, Simon School of Business, April, 2018

Information Feedback and Long-Term Electricity Conservation: Evidence from the Tapestry Building

HEC Montreal, July, 2013

Intermittency and the Value of Renewable Energy:

Imperial College, London, June, 2015
 Universidad de los Andes, Santiago, Chile, May, 2015
 University of Michigan, October, 2014
 Texas A&M University, April, 2012
 University of Texas at Austin, February, 2012
 Carnegie Mellon University, November, 2011
 Harvard University, September, 2011
 University of Gothenburg, May, 2011
 University of Mannheim, April, 2011
 New York University, March, 2011
 Yale University, March, 2011
 University of Arizona, March 2011
 UC Berkeley, November, 2010

Learning and the Value of Information: The Case of Health Plan Report Cards

Washington State University, April, 2007
 University of Toronto, October, 2002
 UC San Diego, April, 2002
 UC Berkeley, April, 2002
 Brown University, April, 2002

Dartmouth College, April, 2002
Stanford University GSB, March, 2002
Columbia University, December, 2001
UC Davis, Agricultural and Resource Economics, November, 2001
UC Berkeley, Agricultural and Resource Economics, October, 2001

Managed Care, Drug Benefits, and Mortality: An Analysis of the Elderly

Medical University of South Carolina, March, 2007
University of Pennsylvania Health Care Management, December, 2006
HEC – Montréal (University of Montreal Business School), March, 2005
University of North Carolina, Department of Health Policy and Administration,
Triangle Health Economics Workshop (long-distance format), September, 2004
Washington University in St. Louis, April, 2004
Yale University, June, 2003
Boston University (joint with Harvard and MIT), April, 2003

Mergers When Prices Are Negotiated: Evidence from the Hospital Industry

University of Alabama – Birmingham, April, 2014
University of Colorado, Boulder, February, 2014
Vanderbilt University, February, 2014
U.S. Department of Justice, November, 2013
Charles River Associates, June, 2013
Stanford University GSB Marketing, May, 2013
University of Tilburg, May, 2013
Toulouse School of Economics, May, 2013
Universidad de los Andes, Santiago, Chile, April, 2013
University of East Anglia, December, 2012
Vanderbilt University, December, 2012
Indiana University, September, 2012
Clemson University, April, 2012
Ohio State University, April, 2012
Columbia University, December, 2011
Johns Hopkins University, October, 2011

“Nash-in-Nash” Bargaining: A Microfoundation for Empirical Work

Nanjing University, May, 2015

Network Externalities and Technology Adoption: Lessons from Electronic Payments

Federal Reserve Bank of New York, December, 2001
New York University Stern School of Business, October, 2001

Policy and the Dynamics of Market Structure: The Critical Access Hospital Program

University of Minnesota, May, 2010
University of Wisconsin, March, 2010
Bates White Economic Consulting, December, 2009
Princeton University, November, 2009

Boston College, November, 2009
 Bank of Canada, June, 2009
 University of California, Davis, April, 2009
 University of California, Irvine, April, 2009
 University of California Los Angeles, October, 2008
 Federal Reserve Bank of Kansas City, October, 2008
 Boston University, June, 2008
 University of Cyprus, May, 2008

Productivity, Safety, and Regulation in Coal Mining: Evidence from Disasters and Fatalities

Hong Kong University, March, 2017

Quantifying Equilibrium Network Externalities in the ACH Banking Industry

Yale University, March, 2003
 University of Montreal, January, 2003
 Washington University in St. Louis, December, 2002
 Harvard University, September, 2002

Reclassification Risk in the Small Group Health Insurance Market

University of Wisconsin, March, 2020
 École Polytechnique/CREST (Paris), May, 2019
 University of California, Los Angeles, May, 2019
 Board of Governors of the Federal Reserve, May, 2019
 University of Nevada, Reno, February, 2019
 University of Toronto, Rotman School, January, 2019
 University of Kansas, November, 2018
 University of North Carolina (joint with Duke University), November, 2018
 University of South Florida, November, 2018
 University of Illinois Gies School of Business, April, 2018
 Toulouse School of Economics, March, 2018
 University at Albany, October, 2017
 University of British Columbia, Sauder School of Business, October, 2016
 Princeton University, September, 2016
 Ohio State University, September, 2016
 Singapore Management University, August, 2016

Salience, Myopia and Complex Dynamic Incentives: Evidence from Medicare Part D

Boston University, November, 2017
 UC Irvine, May, 2017
 Chinese University of Hong Kong, March, 2017
 Universitat Autònoma de Barcelona, November, 2016
 National University of Singapore, August, 2016
 Peking University, National School of Development, June, 2016
 Federal Trade Commission, December, 2015
 Miami University of Ohio, September, 2015

University of Helsinki, August, 2015
 Shanghai University of Finance and Economics, May, 2015
 University of Chile, May, 2015
 University of Southern California, May, 2015
 University of California, Los Angeles, April, 2015
 University of Toronto, December, 2014
 University of North Carolina at Chapel Hill, November, 2014
 Johns Hopkins University, April, 2014
 Northwestern University, April, 2014
 University of Iowa, April, 2014

Soaking Up the Sun: Battery Investment, Renewable Energy, and Market Equilibrium

Harvard University, February, 2021 (virtual)
 Florida State University, January, 2021 (virtual)
 Queen's University, December, 2020 (virtual)
 Georgetown University, November, 2020 (virtual)
 Ohio State University, October, 2020 (virtual)

The Welfare Consequences of ATM Surcharges: Evidence From a Structural Entry Model

Federal Reserve Bank of New York, June, 2004
 University of Minnesota, May, 2004
 Competition Bureau of Canada, May, 2004
 University of Pennsylvania, March, 2004
 University of Chicago Graduate School of Business, Marketing Seminar, April, 2004
 Trinity College Dublin, Dublin (Ireland) Economics Workshop, March, 2004
 Board of Governors of the Federal Reserve, November, 2003
 University of Maryland, October, 2003
 Pennsylvania State University, September, 2003
 Columbia University, September, 2003
 University of Wisconsin, September, 2003

Why Do Incumbent Senators Win? Evidence from a Dynamic Selection Model

American Enterprise Institute, November, 2005
 Washington University in St. Louis, Political Economy Seminar, May, 2004

Invited or refereed conference presentations since October, 2001:

Countervailing Market Power and Hospital Competition

Allied Social Sciences Association Winter Meetings, Chicago, IL, January, 2017

Bayesian Inference For Hospital Quality in a Selection Model

Indiana University Conference on Simulation-Based Econometric Methods, February, 2003

Causality and the Volume-Outcome Relationship in Surgery

Conference on Evaluating Health Policy, Imperial College, UK, May, 2008
 International Health Economics Association Meetings, Barcelona, Spain, July, 2005

Consumers, Information and the Evolving Healthcare Marketplace Conference,
Cornell University, April, 2005

Computing Price-Cost Margins in a Durable Goods Environment

Empirical Models of Differentiated Products Conference, University College London,
June, 2015

Ninth Annual Cowles Conference on Theory-Based Econometric Modeling, Yale
University, June, 2015

Does Health IT Adoption to Better Information or Worse Incentives?

Workshop on Healthcare and Industrial Organization, University of Chile, September,
2017

Dynamics of Consumer Demand for New Durable Goods

Allied Social Sciences Association Winter Meetings, San Francisco, CA, January,
2009

Fifth Annual Bates White Antitrust Conference, Washington, DC, June, 2008

Ninth CEPR Conference on Applied Industrial Organization, Paris, France, May,
2008

Federal Reserve Bank of Minneapolis Applied Microeconomics Conference, October,
2007

Economics of ICT Conference, Paris, France, June, 2007

Econometric Society Summer Meetings, Minneapolis, MN, June, 2006

Escalation of Scrutiny: The Gains from Dynamic Enforcement of Environmental Regulations

2018 Econometric Society Latin American Workshop in Econometrics, Lima, Peru,
August, 2018

Second International Conference on Innovation and Industrial Economics, Nanjing,
China, June, 2018

How Do Hospitals Respond to Payment Incentives?

Notre Dame Health Mini-Conference, September, 2019, South Bend, IN

Intermittency and the Value of Renewable Energy

Marti Ahtisaari Institute Lecture, Oulu, Finland, August, 2015

Center for European Economic Research (ZEW) Energy Conference, Mannheim,
Germany, June, 2012

Pressing Issues in World Energy Policy Conference, University of Florida, March,
2012

POWER Conference, University of California, Berkeley, April, 2012

Fifth Annual Cowles Conference on Theory-Based Econometric Modeling, Yale
University, June, 2011

Eighth Annual Bates White Antitrust Conference, Washington, DC, June, 2011

Twelfth CEPR Conference on Applied Industrial Organization, Tel Aviv University,
May, 2011

Learning and the Value of Information: The Case of Health Plan Report Cards

Econometric Society Winter Meetings, Chicago, IL, January, 2007

Quantitative Marketing and Economics Conference, Chicago, IL, October, 2003

Society for Economic Dynamics Annual Meetings, New York, NY, July 2002

National Bureau of Economic Research (NBER) Summer Institute, Cambridge, MA, July, 2002

Allied Social Sciences Association Winter Meetings, Atlanta, GA, January, 2002

Managed Care, Drug Benefits, and Mortality: An Analysis of the Elderly

National Bureau of Economic Research (NBER) Summer Institute, Cambridge, MA, August, 2004

Annual Health Economics Conference, Birmingham, AL, April, 2004

Measuring Network Effects in a Dynamic Environment

4th Annual Penn State University Conference on Auctions and Procurement, April, 2011

Mergers When Prices Are Negotiated: Evidence from the Hospital Industry

First CREST Conference on Advances in the Economics of Antitrust and Consumer Protection, Paris, France, September, 2014

Penn State/Cornell Conference on Econometrics and Industrial Organization, State College, PA, September, 2014

European Association for Research in Industrial Economics Conference, Evora, Portugal, August, 2013

Zhejiang University Conference on Industrial Economics, Hangzhou, China, June, 2013

Canadian Economic Association, Montreal, Canada, May, 2013

Quantitative Marketing and Economics Conference, Durham, NC, October, 2012

National Bureau of Economic Research (NBER) Summer Institute, Cambridge, MA, July, 2012

Common Ground Conference, Copenhagen Business School, May, 2012

Annual Health Economics Conference, Northwestern University, October, 2011

Allied Social Sciences Association Winter Meetings, Denver, CO, January, 2011

"Nash-in-Nash" Bargaining: A Microfoundation for Empirical Work

Institute for Fiscal Studies Vertical Contracting Conference, London, June, 2018

Network Externalities and Technology Adoption: Lessons from Electronic Payments

Federal Reserve Bank of Philadelphia, Conference on Payment Systems, Philadelphia, PA, May, 2002

Center for Economic Policy and Research Conference on Productivity and Technology, Alghero, Italy, March, 2002

Physician Practice Style and Healthcare Costs: Evidence from Emergency Departments

Society for Institutional & Organizational Economics Conference, Montreal, July,

2018

Policy and the Dynamics of Market Structure: The Critical Access Hospital Program

Third Annual Cowles Conference on Theory-Based Econometric Modeling, Yale University, June, 2009

Penn State University Conference on Procurement and Regulated Markets, April, 2008

HEC Montréal Conference on the I.O. of Health, November, 2007

Pollution Mitigation and Productivity: Evidence from Chinese Manufacturing Firms

Javeriana University Structural I.O. Conference, Bogotá, Colombia, October, 2017

Price Setting and Negotiation in the Supermarket Industry

INRA Trade, Industrial Organization, and the Food Industry Workshop, Paris, France, May 2019

Productivity, Safety, and Regulation in Underground Coal Mining: Evidence from Disasters and Fatalities

New Directions in Commodities Research Conference, University of Colorado, Denver, August, 2017

Third Annual IZA Conference on Labor Market Effects of Environmental Policies, Berlin, Germany, August, 2015

Quality and Employers' Choice of Health Plan

Allied Social Sciences Association Winter Meetings, Washington, DC, January, 2003

Quantifying Equilibrium Network Externalities in the ACH Banking Industry

NET Institute 2005 Conference, New York, NY, April, 2005

Kiel – Munich Workshop on the Economics of Information and Network Industries, Munich, Germany, August, 2004

CEPR Conference on Two-Sided Markets, Toulouse, France, January, 2004

Society for Economic Dynamics Annual Meetings, Paris, France, June, 2003

University of Iowa Clarence Tow Conference on Industrial Organization, May, 2003

International Industrial Organization Society Conference, Boston, MA, April, 2003

Stanford Institute for Theoretical Economics (SITE), July, 2002

Reclassification Risk in the Small Group Health Insurance Market

National Bureau of Economic Research (NBER) Winter Health Care Meetings, Cambridge, MA, November, 2018

Bates White Life Sciences Symposium, June, 2018

Eleventh Annual Cowles Conference on Theory-Based Econometric Modeling, Yale University, June, 2017

Marketing Science Conference on Marketing and Health, St. Louis, MO, November, 2016

Lancaster University Management School Conference on Auctions, Competition, Regulation, and Public Policy, May, 2016

Salience, Myopia and Complex Dynamic Incentives: Evidence from Medicare Part D

Tel Aviv University / IDC Summer Conference, Herzliya, Israel, July, 2017

Colombian Association of Health Economics, Cali, Colombia, February, 2015

National Bureau of Economic Research (NBER) Winter Industrial Organization Meetings, Stanford, CA, February, 2015

Latin American Meetings of the Econometric Society, Sao Paulo, Brazil, November, 2014

Penn State/Cornell Economics on Economics and Industrial Organization, University Park, PA, September, 2014

Eleventh Annual Bates White Antitrust Conference, Washington, DC, June, 2014

Northwestern/Toulouse Industrial Organization Conference, Evanston, IL, May, 2014

Selection, Subsidies, and Welfare in Health Insurance: Employer Sponsored Health Insurance Versus the ACA Marketplaces

Interdisciplinary Choice Workshop, Santiago, Chile, August, 2018

The Welfare Consequences of ATM Surcharges: Evidence From a Structural Entry Model

Recent Developments in Consumer Credit and Payments, Federal Reserve Bank of Philadelphia, Philadelphia, PA, September, 2005

National Bureau of Economic Research (NBER) Winter Industrial Organization Meetings, Menlo Park, CA, February, 2005

Allied Social Sciences Association Winter Meetings, Philadelphia, PA, January, 2005

University of British Columbia Summer Industrial Organization Conference, July, 2003

Documents Considered List

Academic Articles

- Aspinall, Esther J., Dhanya Nambiar, and David J. Goldberg (2014), "Are Needle and Syringe Programmes Associated with a Reduction in HIV Transmission Among People Who Inject Drugs: A Systematic Review and Meta-Analysis," *International Journal of Epidemiology*, 43, pp. 235–248, <https://academic.oup.com/ije/article/43/1/235/734951>.
- Baicker, Katherine, Michael E. Chernew, and Jacob A. Robbins (2013), "The Spillover Effects of Medicare Managed Care: Medicare Advantage and Hospital Utilization," *Journal of Health Economics*, 32(6), pp. 1–41, <https://www.sciencedirect.com/science/article/abs/pii/S0167629613001124?via%3Dihub>.
- Bernard, Cora L. Douglas K. Owens, and Jeremy D. Goldhaber-Fiebert (2017), "Estimation of the Cost-Effectiveness of HIV Prevention Portfolios for People Who Inject Drugs in the United States: A Model-Based Analysis," *Plos Medicine*, 14(5), pp. 1–19, <https://doi.org/10.1371/journal.pmed.1002312>.
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- Birnbaum, Howard G., Alan G. White, and Matt Schiller (2011), "Societal Costs of Prescription Opioid Abuse, Dependence, and Misuse in the United States," *Pain Medicine*, 12, pp. 657–667, <https://academic.oup.com/painmedicine/article/12/4/657/1869828>.
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 - Green, Traci C., Jennifer Clarke, and Lauren Brinkley-Rubinstein (2018), “Postincarceration Fatal Overdoses After Implementing Medications for Addiction Treatment in a Statewide Correctional System,” *JAMA Psychiatry*, 75(4), pp. 405–407, <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2671411>.
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- Expert Report of Dr. Jeffrey B. Liebman, *State of Washington v. Purdue Pharma L.P. et al.*, State of Washington King County Superior Court, Case No. 17-2-25505-0 SEA, July 8, 2019.
- Expert Witness Report of G. Caleb Alexander, MD, MS, *State of Washington v. Purdue Pharma L.P. et al.*, State of Washington King County Superior Court, Case No. 17-2-25505-0 SEA, July 8, 2019.
- Expert Witness Report of Katherine Keyes, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1868-4, March 24, 2019.
- Report of Professor Thomas McGuire, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1999-17, March 25, 2019.
- Supplemental Expert Report of Dr. Jeffrey B. Liebman, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1899-12, April 3, 2019.

- Supplemental Expert Witness Report of G. Caleb Alexander, MD, MS, *In Re: National Prescription Opiate Litigation*, United States District Court for the Northern District of Ohio, Case No. 1:17-md-02804-DAP, Docket No. 1999-2, April 3, 2019.
- Supplemental Expert Disclosure of Christopher J. Ruhm, Ph.D., *State of Oklahoma, ex rel., et al. vs. Purdue Pharma L.P., et al.*, District Court of Cleveland County, State of Oklahoma, Case No. CJ-2017-816, February 5, 2019.

Legal Documents

- Disclosure Statement for Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 2, 2021.
- Fifth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and Its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, June 3, 2021.
- Class Action Complaint, *Melissa Ambrosio, Individually and as Next Friend of Baby G.A., On Behalf of Themselves and All Others Similarly Situated v. Purdue Pharma L.P.*, Mar. 16, 2018.
- Complaint, *City of Anacortes, and Sedro-Woolley School District v. Purdue Pharma, L.P., et al.*, December 21, 2018.
- Complaint, *International Union of Operating Engineers, Local 150, et al. v. Purdue Pharma L.P., et al.*, February 6, 2019.
- Complaint, *Mental Health & Recovery Services Board of Allen, Auglaize, and Hardin Counties v. Purdue Pharma L.P., et al.*, December 19, 2018.
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- Complaint, *Broward Behavioral Health Coalition v. Purdue Pharma L.P., et al.*, May 8, 2019.
- Complaint, *J. Jones Hospital v. McKesson Corp., et al.*, January 24, 2018.
- Complaint, *Lori Taylor, as Next Friend and Guardian of Baby M.T. v. Purdue Pharma L.P., et al.*, June 18, 2019.
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- First Amended Complaint, *State of Washington v. Purdue Pharma L.P., et al.*, May 4, 2018.

- First Amended Complaint and Jury Demand, *Commonwealth of Massachusetts v. Purdue Pharma L.P., et al.*, January 31, 2019
- Second Amended Corrected Complaint, *The County of Cuyahoga, Ohio, et al. v. Purdue Pharma L.P., et al.*, May 18, 2018.
- Notice of Filing of Fifth Plan Supplement Pursuant to the Fourth Amended Joint Chapter 11 Plan of Reorganization of Purdue Pharma L.P. and its Affiliated Debtors, *In re: Purdue Pharma L.P., et al., Debtors*, May 26, 2021.
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- “Summary of Information on the Safety and Effectiveness of Syringe Services Programs,” *CDC*, May 23, 2019.
- “Tracking FY2019 Federal Funding to Combat the Opioid Crisis,” *Bipartisan Policy Center*, September 2020.
- Kurland, Judith and Deborah K. Walker, “Funding Cuts to Public Health in Massachusetts: Losses over Gains,” *Understanding Boston*, June 2004.
- Miller, R. Ted and Delia Hendrie, “Substance Abuse Prevention Dollars and Cents: A Cost-Benefit Analysis,” *DHHS*, 2008.

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- “CDC Fiscal Year 2019 Grant Funding by State,” *CDC*, <https://fundingprofiles.cdc.gov/>, accessed on June 7, 2021.
- “Education,” *National Congress of American Indians*, https://www.ncai.org/policy-issues/education-health-human-services/education#FTN_1, accessed on June 7, 2021.
- “Economic Burden of Illness in Opioid Use Disorder (OUD) and Medication-Assisted Treatments,” *AJMC Perspectives*, October 2020, <https://www.ajmc.com/view/economic-burden-of-illness-in-opioid-use-disorder-oud-and-medication-assisted-treatments>, accessed on May 27, 2021.
- “Medicaid and Counties, Understanding the Program and Why It Matters to Counties,” *NACo*, February 2018, https://www.naco.org/sites/default/files/documents/Medicaid_02.19.18.pdf, accessed on May 27, 2021.

- “Purchased/Referred Care (PRC),” *Indian Health Service*, June 2016, <https://www.ihs.gov/newsroom/factsheets/purchasedreferredcare/>, accessed on June 7, 2021.
- Mann, Cindy, Thomas Frieden, Pamela S. Hyde, Nora D. Volkow, George F. Koob, “Medication Assisted Treatment for Substance Use Disorders,” *CMS, SAMHSA, CDC and NIH Informational Bulletin*, July 2014, <https://www.medicaid.gov/federal-policy-guidance/downloads/cib-07-11-2014.pdf>, accessed on May 27, 2021.